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मानक

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Mazdoor Kisan Shakti Sangathan

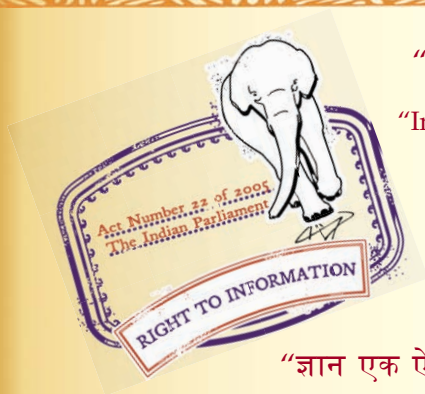
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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 4846 (1968): Sodium potassium tartrate (Rochelle salt)
[CHD 5: Electroplating Chemicals and Photographic
Materials]



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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR SODIUM POTASSIUM TARTRATE (ROCHELLE SALT)

(First Reprint OCTOBER 1983)

UDC 661.733.39 : 661.832/.833



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR SODIUM POTASSIUM TARTRATE (ROCHELLE SALT)

Electroplating Chemicals Sectional Committee, CDC 43

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Indian Standard

SPECIFICATION FOR SODIUM POTASSIUM TARTRATE (ROCHELLE SALT)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 13 November 1968, after the draft finalized by the Electroplating Chemicals Sectional Committee had been approved by the Chemical Division Council.

0.2 Sodium potassium tartrate, commonly known as Rochelle salt, is obtained from tartaric acid. It is used as a buffering agent in electroplating baths to facilitate metal deposition. It is also used as a reducing agent in silvering of mirrors. In laboratory it forms an ingredient of Fehling's solution for the determination of reducing substances, especially sugars. In medicine it finds use as a mild saline cathartic in preparations like compound effervescing powders or Seidlitz powders. It is used as an emulsifying agent in the manufacture of processed cheese. The crystals of Rochelle salt exhibit piezoelectricity, which makes them valuable as components of crystal controlled electronic oscillators.

0.3 This standard has clause 4.1 which provides for agreement between the purchaser and the supplier.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for sodium potassium tartrate commonly known as Rochelle salt.

2. GRADES

2.1 The material shall have two grades, namely:

- a) Technical grade — suitable for electroplating purposes, and
- b) Analytical reagent grade.

*Rules for rounding off numerical values (revised).

3. REQUIREMENTS

3.1 Description — The material shall be in the form of colourless crystals, or white crystalline powder, having a cooling saline taste. It shall correspond approximately in composition to $\text{NaKC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$. It effloresces slightly in warm, dry air, being freely soluble in water and insoluble in alcohol.

3.2 The material shall also comply with the requirements given in Table 1 when tested in accordance with the methods prescribed in Appendix A. Reference to the relevant clauses of Appendix A is given in col 5 of Table 1.

4. PACKING AND MARKING

4.1 Packing — The material shall be packed in air-tight containers as agreed to between the purchaser and the supplier.

4.2 Marking — The containers shall be suitably and legibly marked with the following information:

- a) Name, grade and net weight of the material;
- b) Name of the manufacturer and his registered trade-mark, if any; and
- c) Lot number and date of manufacture.

4.2.1 The containers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 The method of preparing representative samples of the material and the criteria for conformity of the material to this specification shall be as prescribed in Appendix B.

TABLE 1 REQUIREMENTS FOR SODIUM POTASSIUM TARTRATE
(ROCHELLE SALT)

(Clause 3.2)

Sl No.	CHARACTERISTIC	REQUIREMENT		METHODS OF TEST (REF TO CL NO. IN APPENDIX A)
		Technical Grade	Analytical Reagent Grade	
(1)	(2)	(3)	(4)	(5)
i)	Rochelle salt (as $\text{NaKC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$), percent by weight, <i>Min</i>	99.0	99.0—101.0	A-2
ii)	Moisture, percent by weight, <i>Max</i>	1.0	—	A-3
iii)	Iron (as Fe), percent by weight, <i>Max</i>	0.010	0.000 5	A-4
iv)	Heavy metals (as Pb), percent by weight, <i>Max</i>	0.001	0.000 8	A-5
v)	Insoluble matter, percent by weight, <i>Max</i>	—	0.005	A-6
vi)	Chlorides (as Cl), percent by weight, <i>Max</i>	—	0.000 5	A-7
vii)	Phosphates (as PO_4), percent by weight, <i>Max</i>	—	0.001	A-8
viii)	Ammonium salts (as NH_4), percent by weight, <i>Max</i>	—	0.002	A-9
ix)	Sulphates (as SO_4), percent by weight, <i>Max</i>	—	0.005	A-10
x)	Calcium salts (as Ca), percent by weight, <i>Max</i>	—	0.004	A-11
xi)	Free alkali (as KOH), percent by weight, <i>Max</i>	0.006	0.006	A-12
xii)	Free acid (as $\text{KHC}_4\text{H}_4\text{O}_6$), percent by weight, <i>Max</i>	0.12	0.12	A-13

APPENDIX A

(Clause 3.2)

ANALYSIS OF SODIUM POTASSIUM TARTRATE

A-1. QUALITY OF REAGENTS

A-1.1 Unless specified otherwise, pure chemicals and distilled water (see IS : 1070-1960*) shall be used in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the results of analysis.

A-2. DETERMINATION OF SODIUM POTASSIUM TARTRATE

A-2.1 Reagents

A-2.1.1 Dilute Sulphuric Acid — 1 N.

A-2.1.2 Sodium Hydroxide Solution — 1 N.

A-2.2 Procedure

A-2.2.1 Weigh accurately about 5 g of the material in a platinum dish, and ignite gently, until the material is completely charred. After cooling, place the platinum dish in a beaker, add 50 ml of water and 50 ml of dilute sulphuric acid, and disperse the carbonized mass with a glass rod. Cover the beaker and boil the mixture for 30 minutes. Filter, wash with hot water until the washing is neutral to litmus, and allow to cool. To the combined filtrate and washings, add a few drops of methyl orange indicator, and titrate with sodium hydroxide solution.

A-2.3 Calculation

Sodium potassium tartrate (as $\text{NaKC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$),
percent by weight $= \frac{141.1 (50 - V)}{W}$

where

V = volume in millilitres of sodium hydroxide solution used,
and

W = weight in grams of the material taken for the test.

A-3. DETERMINATION OF MOISTURE

A-3.1 Procedure — Dry carefully a weighing bottle provided with a stopper. Take about 1 g of the material in the bottle, and weigh

*Specification for water, distilled quality (revised).

accurately. Dry the material in the bottle for 4 hours at $110^{\circ} \pm 2^{\circ}\text{C}$ in an air-oven. Cool in a desiccator and weigh.

A-3.2 Calculation

$$\text{Moisture, percent by weight} = \frac{100 (W - W_1)}{W}$$

where

W = weight in grams of the material before drying, and

W_1 = weight in grams of the material after drying.

A-4. DETERMINATION OF IRON

A-4.1 Apparatus

A-4.1.1 *Nessler Cylinders* — 50 ml capacity (see IS : 4161-1967*).

A-4.2 Reagents

A-4.2.1 *Concentrated Hydrochloric Acid* — conforming to IS : 265-1962†.

A-4.2.2 *Ammonium Persulphate*

A-4.2.3 *Butanolic Potassium Thiocyanate Solution* — Dissolve 10 g of potassium thiocyanate in 10 ml of water and add sufficient *n*-butanol to measure 100 ml. Shake vigorously until the solution becomes clear.

A-4.2.4 *Standard Iron Solution* — Dissolve 0.702 g of ferrous ammonium sulphate $[\text{FeSO}_4 (\text{NH}_4)_2 \text{SO}_4 \cdot 6\text{H}_2\text{O}]$ in about 100 ml of water containing 10 ml of dilute sulphuric acid (10 percent *v/v*) and dilute to 1 000 ml. Before use, dilute 50 ml of the solution to 500 ml. One millilitre of the diluted solution is equivalent to 0.01 mg of iron (as Fe).

A-4.3 **Procedure** — Dissolve 1.000 g of the material in 40 ml of water contained in a Nessler cylinder, add 2 ml of concentrated hydrochloric acid and 30 mg of ammonium persulphate. Add 15 ml of butanolic potassium thiocyanate solution. Shake vigorously for 30 seconds and allow the two layers to separate. Simultaneously, carry out a control test in another Nessler cylinder using standard iron solution and adding the same quantities of the reagents as with the material. Compare the colour produced in the two cylinders.

A-4.3.1 The limit for technical grade of material prescribed in Table 1 shall be taken as not having been exceeded if the intensity of colour produced with the material is not greater than that of the colour produced in the control test using 10 ml of standard iron solution.

*Specification for Nessler cylinders.

†Specification for hydrochloric acid (revised).

A-4.3.2 The limit for analytical reagent grade of material prescribed in Table 1 shall be taken as not having been exceeded if the intensity of colour produced with the material is not greater than that of the colour produced in the control test using 0.5 ml of the standard iron solution.

A-5. DETERMINATION OF HEAVY METALS

A-5.0 Outline of the Method — Heavy metals are estimated by comparing the colour produced with the material and with the standard lead solution respectively on adding sodium sulphide solution.

A-5.1 Apparatus

A-5.1.1 Nessler Cylinders — 50 ml capacity (see IS : 4161-1967*).

A-5.2 Reagents

A-5.2.1 Dilute Acetic Acid — 1 N.

A-5.2.2 Standard Lead Solution — Dissolve 1.60 g of lead nitrate [$\text{Pb} (\text{NO}_3)_2$] in water and make up the solution to 1 000 ml. Pipette out 10 ml of the solution and again dilute to 1 000 ml with water. One millilitre of this solution contains 0.01 mg of lead (as Pb).

A-5.2.3 Sodium Sulphide Solution — 5 percent (w/v), prepared fresh.

A-5.3 Procedure — Dissolve 1.000 g of the material in about 20 ml of water in a Nessler cylinder. Add 0.5 ml each of acetic acid and sodium sulphide solutions, and dilute to 50 ml with water with stirring. Simultaneously, carry out a control test in another Nessler cylinder using standard lead solution and adding the same quantities of reagents as with the material. Compare the colour produced in the two Nessler cylinders.

A-5.3.1 The limit for technical grade of material prescribed in Table 1 shall be taken as not having been exceeded if the intensity of colour produced with the material is not greater than that of the colour produced in the control test using 1 ml of standard lead solution.

A-5.3.2 The limit for analytical reagent grade of material prescribed in Table 1 shall be taken as not having been exceeded if the intensity of colour produced with the material is not greater than that of the colour produced in the control test using 0.8 ml of the standard lead solution.

A-6. DETERMINATION OF MATTER INSOLUBLE IN WATER

A-6.1 Procedure — Accurately weigh about 20 g of the material and dissolve it in about 150 ml of water in a beaker. Cover the beaker and

*Specification for Nessler cylinders.

digest for 30 minutes on a water-bath. Filter the solution through a tared filter paper, Gooch crucible or sintered glass crucible (G No. 4) and wash the residue thoroughly with water. Dry the filter paper or the crucible along with residue to constant weight at 105° to 110°C.

A-6.2 Calculation

$$\begin{array}{l} \text{Matter insoluble in water,} \\ \text{percent by weight} \end{array} = \frac{100 \times W_1}{W}$$

where

W_1 = weight in grams of the residue, and

W = weight in grams of the material taken for the test.

A-7. DETERMINATION OF CHLORIDES

A-7.1 Apparatus

A-7.1.1 Nessler Cylinders — 50 ml capacity (see IS : 4161-1967*).

A-7.2 Reagents

A-7.2.1 Dilute Nitric Acid — approximately 5 N.

A-7.2.2 Silver Nitrate Solution — approximately 4 percent (w/v).

A-7.2.3 Standard Chloride Solution — Dissolve 0.1649 g of sodium chloride (NaCl) in water and make up the volume to 1 000 ml. Further dilute 10 ml of this solution to 100 ml. One millilitre of the diluted solution contains 0.01 mg of chloride (as Cl).

A-7.3 Procedure — Dissolve 2.000 g of the material in 30 ml of water. Add 6 ml of dilute nitric acid and 1 ml of silver nitrate solution. Make up the volume to 50 ml mark with water. Carry out a control test using 1 ml of standard chloride solution and the same quantities of other reagents in the same total volume of the reaction mixture. Compare the turbidity in both the cylinders after 5 minutes.

A-7.3.1 The limit prescribed in Table 1 shall be taken as not having been exceeded if the turbidity produced in the test with the material is not greater than that produced in the control test.

A-8. DETERMINATION OF PHOSPHATES

A-8.1 Apparatus

A-8.1.1 Platinum Dish — approximately 100 ml capacity.

*Specification for Nessler cylinders.

A-8.1.2 Nessler Cylinders — 50 ml capacity (see IS : 4161-1967*).

A-8.2 Reagents

A-8.2.1 Nitric Acid — approximately 6 N.

A-8.2.2 Dilute Sulphuric Acid — approximately 0.5 N.

A-8.2.3 p-Methyl Aminophenol Sulphate

A-8.2.4 Ammonium Molybdate Solution — Dissolve 50 g of ammonium molybdate in 500 ml of water; allow to stand for 24 hours, and filter. Store this solution in a polyethylene bottle.

A-8.2.5 Standard Phosphate Solution — Dissolve 0.377 g of sodium hydrogen phosphate ($\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$) in water and dilute to 1 000 ml. Dilute 10 ml of this solution to 100 ml. One millilitre of the diluted solution contains 0.01 mg of phosphate (as PO_4).

A-8.3 Procedure — Ignite 1.000 g of the material in the platinum dish. Dissolve the residue in 5 ml of water, add 10 ml of nitric acid and evaporate to dryness. Dissolve the residue in 25 ml of dilute sulphuric acid, add 1 ml of ammonium molybdate solution and 1 ml of p-methyl aminophenol sulphate solution, and allow to stand for 2 hours at room temperature. Carry out a control test using 1 ml of standard phosphate solution and the same quantities of other reagents in the same total volume of the reaction mixture. Compare the blue colour produced in both the cylinders.

A-8.3.1 The limit prescribed in Table 1 shall be taken as not having been exceeded if the blue colour produced in the test with the materials is not greater than that produced in the control test.

A-9. DETERMINATION OF AMMONIA

A-9.1 Apparatus

A-9.1.1 Nessler Cylinders — 50 ml capacity (see IS : 4161-1967*).

A-9.2 Reagents

A-9.2.1 Sodium Hydroxide Solution — approximately 2.5 N.

A-9.2.2 Potassium Iodide

A-9.2.3 Mercuric Chloride Solution — saturated solution in water.

A-9.2.4 Potassium Hydroxide — solid.

A-9.2.5 Nessler's Solution — Dissolve 10 g of potassium iodide in 10 ml of ammonia-free water and add to it slowly, with stirring, mercuric chloride

*Specification for Nessler cylinders.

solution until a slight permanent precipitate forms. Add 30 g of potassium hydroxide and, when it has dissolved, add 1 ml more of mercuric chloride solution and dilute to 200 ml with ammonia-free water. Allow to settle overnight, decant the clear solution and keep the solution in a bottle closed with a well-fitting rubber stopper.

A-9.2.6 Standard Ammonia Solution — Dissolve 2.97 g of ammonium chloride (NH_4Cl) in water and make up to 1 000 ml. Dilute 10 ml of this solution to 100 ml. One millilitre of the diluted solution contains 0.1 mg of ammonia (as NH_3).

A-9.3 Procedure — Dissolve 5.000 g of the material in 25 ml of water and add 2 ml of sodium hydroxide solution. Dilute to about 40 ml and add 2 ml of Nessler's solution. Finally make up to the mark. Carry out a control test using 1 ml of standard ammonia solution and the same quantities of other reagents in the same total volume of the reaction mixture.

A-9.3.1 The limit prescribed in Table 1 shall be taken as not having been exceeded if the intensity of the colour produced in the test with the material is not greater than that produced in the control test.

A-10. DETERMINATION OF SULPHATE

A-10.1 Reagents

A-10.1.1 Dilute Hydrochloric Acid — approximately 5 N.

A-10.1.2 Barium Chloride Solution — 10 percent (w/v).

A-10.2 Procedure — Dissolve 5.0 g of the material in 100 ml of water. Add 25 ml of dilute hydrochloric acid, heat to boiling, add 5 ml of barium chloride solution, and allow to stand for 6 hours. If a precipitate is formed, filter, wash and ignite.

A-10.2.1 The limit prescribed in Table 1 shall be taken as not having been exceeded if the weight of the ignited precipitate is not greater than 0.000 6 g.

A-11. DETERMINATION OF CALCIUM

A-11.1 Reagents

A-11.1.1 Dilute Hydrochloric Acid — approximately 5 N.

A-11.1.2 Standard Calcium Solution — Weigh 1.000 g of calcium carbonate dried at 120°C and dissolve it in the minimum quantity of dilute hydrochloric acid. Dilute the solution to one litre in a graduated flask. One millilitre of the solution is equivalent to 0.4 mg of calcium (as Ca).

A-11.1.3 Standard Disodium Ethylenediamine Tetra-acetate (EDTA) Solution — Weigh 3.72 g of disodium ethylenediamine tetra-acetate dihydrate in water and dilute in a graduated flask to one litre. The solution shall be standardized before use.

A-11.1.4 Standard Sodium Hydroxide Solution — 5 N.

A-11.1.5 Murexide Indicator — Grind 0.2 g of murexide with 10 g of sodium chloride until the mixture is homogenous.

A-11.2 Procedure

A-11.2.1 Standardization of EDTA Solution — Pipette out 50 ml of standard calcium solution in a 250 ml conical flask and add to it 1 ml of standard sodium hydroxide solution to adjust the pH of the solution to about 12. Add 0.2 g of murexide indicator and titrate against EDTA solution until the colour changes from pink to purple.

NOTE — The aliquot for titration shall be neutral so that by adding standard sodium hydroxide solution, the desired pH could be adjusted in the solution.

A-11.2.2 Preparation of Solution — Weigh accurately about 50 g of the material dried at 110°C for 1 hour, dissolve in water and dilute to 250 ml in a volumetric flask.

A-11.2.3 Pipette 50 ml of the prepared solution (A-11.2.2) in a 250 ml conical flask and dilute with 40 ml of water. Add 1.5 ml of the standard sodium hydroxide solution followed by 0.2 g of murexide indicator. Titrate against standard EDTA solution till the colour changes from wine red to purple.

A-11.3 Calculation

Calcium (as Ca), percent by weight = $10 V A$

where

V = volume in millilitres of standard EDTA used in A-11.2.3,
and

A = weight in grams of calcium equivalent to 1 ml of standard EDTA solution as obtained in A-11.2.1.

A-12. DETERMINATION OF FREE ALKALI

A-12.1 Reagents

A-12.1.1 Standard Hydrochloric Acid — 0.1 N approximately.

A-12.1.2 Phenolphthalein Indicator — Dissolve 0.1 g of phenolphthalein in 100 ml of rectified spirit conforming to IS : 323-1959*.

*Specification for rectified spirit (revised).

A-12.2 Procedure — Weigh accurately about 20 g of the material and add 50 ml of hot water. Stir well the suspension for about 10 minutes. Filter by decantation and wash the residue twice with 10 ml portions of water, passing the washings again by decantation through the filter. Collect all the filtrates in a beaker. Titrate the combined filtrates with standard hydrochloric acid using phenolphthalein as indicator.

A-12.3 Calculation

$$\begin{array}{l} \text{Free alkali (as KOH),} \\ \text{percent by weight} \end{array} = \frac{5.6 \times V N}{W}$$

where

V = volume in millilitres of standard hydrochloric acid used in filtration;

N = normality of hydrochloric acid; and

W = weight in grams of the material taken for the test.

A-13. DETERMINATION OF FREE ACID

A-13.1 Reagents

A-13.1.1 Sodium Hydroxide Solution — 0.02 N.

A-13.1.2 Phenolphthalein Indicator Solution — same as in A-12.1.2.

A-13.2 Procedure — Accurately weigh about 2 g of the material and dissolve in 20 ml of hot water. Add 2 drops of phenolphthalein. Add dropwise sodium hydroxide solution till a pink colour is produced.

A-13.3 The limit prescribed in Table 1 shall be taken as not having been exceeded if the volume of sodium hydroxide solution required to produce the pink colour does not exceed 0.6 ml.

APPENDIX B

(Clause 5.1)

SAMPLING OF SODIUM POTASSIUM TARTRATE

B-1. GENERAL REQUIREMENTS FOR SAMPLING

B-1.1 Samples shall be taken in a protected place not exposed to damp air, dust or soot.

B-1.2 The sampling instrument shall be clean and dry.

B-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

B-1.4 To draw a representative sample, the contents of each container selected for sampling shall be mixed as thoroughly as possible by suitable means.

B-1.5 The samples shall be placed in suitable, clean, dry, and air-tight glass bottles or other suitable containers on which the material has no action.

B-1.6 The sample containers shall be of such a size that they are almost completely filled by the sample.

B-1.7 Each sample container shall be sealed air-tight after filling, and marked with full details of sampling, the date of sampling and details given under 4.2.

B-2. SCALE OF SAMPLING

B-2.1 Lot — In a single consignment all the containers of the same grade of material drawn from a single batch of manufacture shall constitute a lot.

B-2.2 For ascertaining the conformity of the material to the requirements of this specification, samples shall be tested for each lot separately. The number of containers to be selected at random from lots of different sizes shall be in accordance with Table 2.

TABLE 2 NUMBER OF CONTAINERS TO BE SELECTED FROM LOTS OF DIFFERENT SIZES

LOT SIZE	SAMPLE SIZE
N	n
(1)	(2)
3 to 15	3
16 " 40	4
41 " 110	5
111 " 180	6
181 " 300	7
301 " 500	8
501 " 800	9
801 and above	10

B-2.3 In order to ensure randomness of selection, random number tables shall be used. In case such tables are not available, the following procedure is recommended for use:

Starting from any one, count all the containers in the lot in one order as 1, 2,.....up to r and so on, where r is the integral part of N/n (N and n being the lot size and sample size respectively). Every r th container thus counted shall be withdrawn to constitute the sample.

B-3. PREPARATION OF TEST SAMPLES

B-3.1 From each of the container selected in **B-2.3** small portions of material shall be taken from different parts with the help of a suitable sampling instrument. These portions when mixed together shall constitute the individual sample representing the container. The material in each individual sample left after preparation of the composite sample as prescribed in **B-3.2** shall be not less than 3 times the material required for testing prescribed in **B-4.1**, and shall be divided into 3 equal parts, one each for the buyer and the supplier, and the third as referee sample.

B-3.2 From all the individual samples obtained in **B-3.1**, small but equal quantities of material shall be taken and mixed to constitute the composite sample. The material in the composite sample shall be atleast 3 times the material required for testing prescribed in **B-4.2**, and shall be divided into 3 equal parts one each for the buyer and the supplier and the third as referee sample.

B-3.3 All the samples obtained after division in **B-3.1** and **B-3.2** shall be transferred to separate sample container (see **B-1.5** and **B-1.6**) which shall be closed air-tight, sealed and marked with identification particulars (see **B-1.7**).

B-3.4 The set of referee samples consisting, like the other two sets, of a composite sample and individual samples shall bear the seal of both, the purchaser and the supplier and shall be kept under conditions suitable to preserve the characteristics of the material.

B-4. NUMBER OF TESTS

B-4.1 Each of the individual samples shall be separately tested for sodium potassium tartrate content.

B-4.2 The composite sample shall be tested for all the other requirements of this specification.

B-5. CRITERIA FOR CONFORMITY

B-5.1 For Individual Samples — The mean and the range of the individual test results on sodium potassium tartrate content shall be

computed as follows:

$$\text{Mean } (\bar{X}) = \frac{\text{Sum of individual test results}}{\text{Number of test results}}$$

$$\text{Range } (R) = \text{Difference between the maximum and the minimum test results.}$$

B-5.1.1 The lot shall be declared to have satisfied the requirement of sodium potassium tartrate content if the value of the expression $(\bar{X} - 0.6R)$ is greater than or equal to the minimum value specified for the grade under consideration.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

INDIAN STANDARDS INSTITUTION

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Regional Offices :

		Telephone
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Northern : B69, Phase VII	S A S. NAGAR	8 78 23
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22E Kalpana Area	BHUBANESHWAR 751014	5 36 27
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117/418 B Sarvodaya Nagar	KANPUR 208005	4 72 92
Patliputra Industrial Estate	PATNA 800013	6 28 08
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